TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION

TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE (TBPOC) MEETING
10:00 a.m. Thursday, August 15, 2013
Joseph P. Bort MetroCenter
Lawrence D. Dahms Auditorium
101 8th Street, 1st Floor
Oakland, CA 94607

The Toll Bridge Program Oversight Committee, created pursuant to California State Streets and Highway Code Section 30952.1, is tasked with project oversight and control over the State Toll Bridge Seismic Retrofit Program projects.

This meeting is scheduled to be audiocast live on the Metropolitan Transportation Commission's (MTC) Web site: www.mtc.ca.gov

AGENDA

	ACTION RECOMMENDED**
1. Update on San Francisco-Oakland Bay Bridge East Span Seismic Safety Project	
a) Interim Bearing Retrofit Proposal*	Committee Approval
The Committee will be requested to authorize the installation of bearing shims to make the new East Span of the San Francisco-Oakland Bay Bridge seismically safe for traffic while a permanent replacement of broken bolts at Pier E2 is under construction. The committee will be presented with staff's interim retrofit proposals along with independent reviews of the proposal by the Federal Highway Administration and by two engineering consultants to the Bay Area Toll Authority (BATA).	
b) Bridge Opening Date Determination*	Committee Approval
The Committee will be presented with various bridge opening date scenarios, including information on construction schedules, construction risks, traffic volumes, and event schedules from around the region.	
c) Bridge Opening Events*	Information
The Committee will be presented with information on events related to bridge opening.	

* Attachment sent to committee members, key staff and others as appropriate. Copies will be available at the meeting.

** All items on the agenda are subject to action and/or change by the Committee. Actions recommended by staff are subject to change by the Committee.

Public Comment: The public is encouraged to comment on agenda items by completing a request-to-speak card (available from staff) and passing it to the committee secretary. Public comment may be limited by any of the procedures set forth in Section 3.09 of MTC's Procedures Manual (Resolution No. 1058, Revised) if, in the chair's judgment, it is necessary to maintain the orderly flow of business.

Meeting Conduct: If this meeting is willfully interrupted or disrupted by one or more persons rendering orderly conduct of the meeting unfeasible, the Chair may order the removal of individuals who are willfully disrupting the meeting. Such individuals may be arrested. If order cannot be restored by such removal, the members of the committee may direct that the meeting room be cleared (except for representatives of the press or other news media not participating in the disturbance), and the session may continue.

Record of Meeting: This meeting will be recorded. Audiocasts are maintained on MTC's Web site for public review for at least one year.

TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

CALTRANS · BAY AREA TOLL AUTHORITY · CALIFORNIA TRANSPORTATION COMMISSION

Memorandum

TO: Toll Bridge Program Oversight Committee (TBPOC) **DATE:** August 14, 2013

FR: Program Management Team

RE: Agenda No. - 1a
Item – Interim Bearing Retrofit Proposal

Recommendation:
The Committee is requested to authorize the installation of bearing shims to make the new East Span of the San Francisco-Oakland Bay Bridge seismically safe for traffic while a permanent replacement of broken bolts at Pier E2 is under construction.

Discussion:
On July 10, 2013 at a meeting of the Bay Area Toll Authority (BATA), members of the Toll Bridge Program Oversight Committee (TBPOC) briefed BATA commissioners on findings contained in the recently released report on the high-strength steel bolts used on the new Bay Bridge East Span. A key focus was the ongoing effort to retrofit Pier E2 where the bolt failure occurred. The fabrication and installation of a reinforcing steel saddle retrofit is forecast for completion in December of this year.

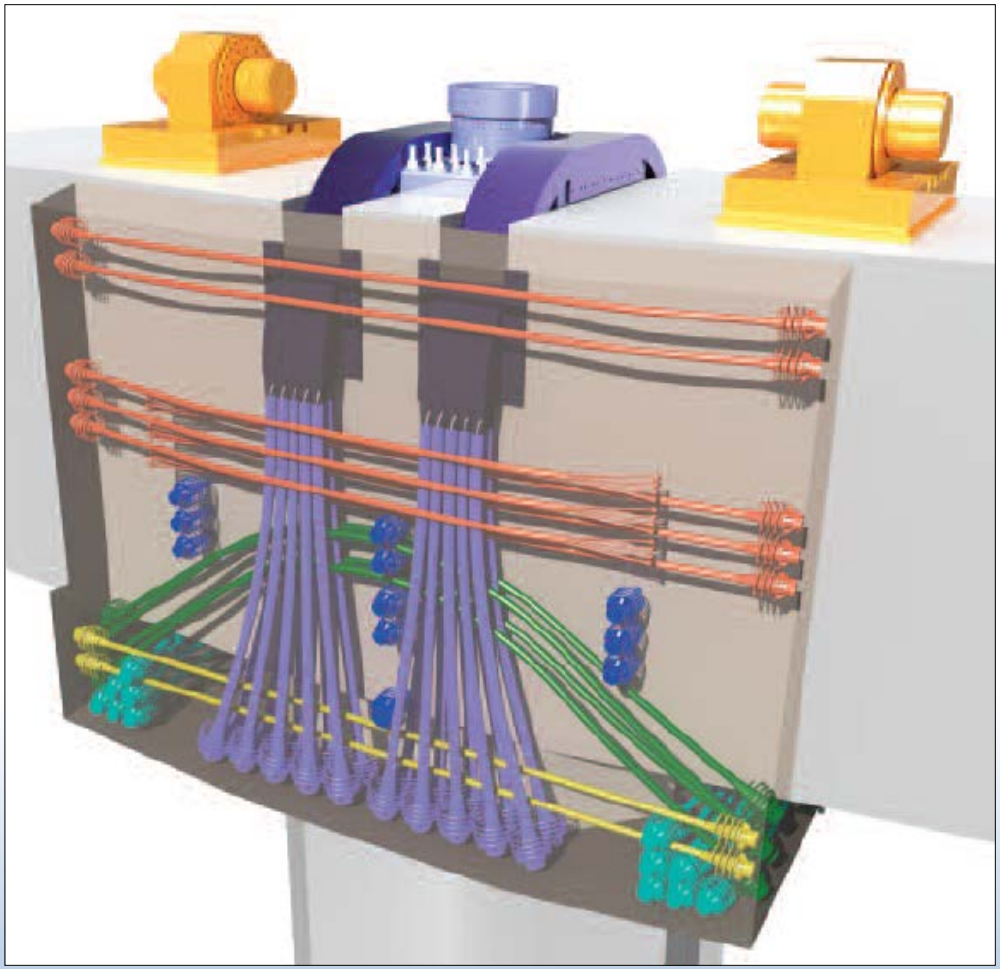
The Toll Bridge Seismic Safety Peer Review Panel (TBSSPRP) provided a graphic showing the superior strength of the new East Span design compared to the old East Span, and supported a proposal for an interim fix at Pier E2. The TBPOC asked the Federal Highway Administration (FHWA) and two preeminent bridge engineers from the firms of Buckland & Taylor, Ltd., and Modjeski and Masters to review this recommendation.

All reviews have reached the same and unequivocal conclusion that the interim retrofit will adequately protect and allow for the opening of the new East Span while the permanent retrofit is under construction.

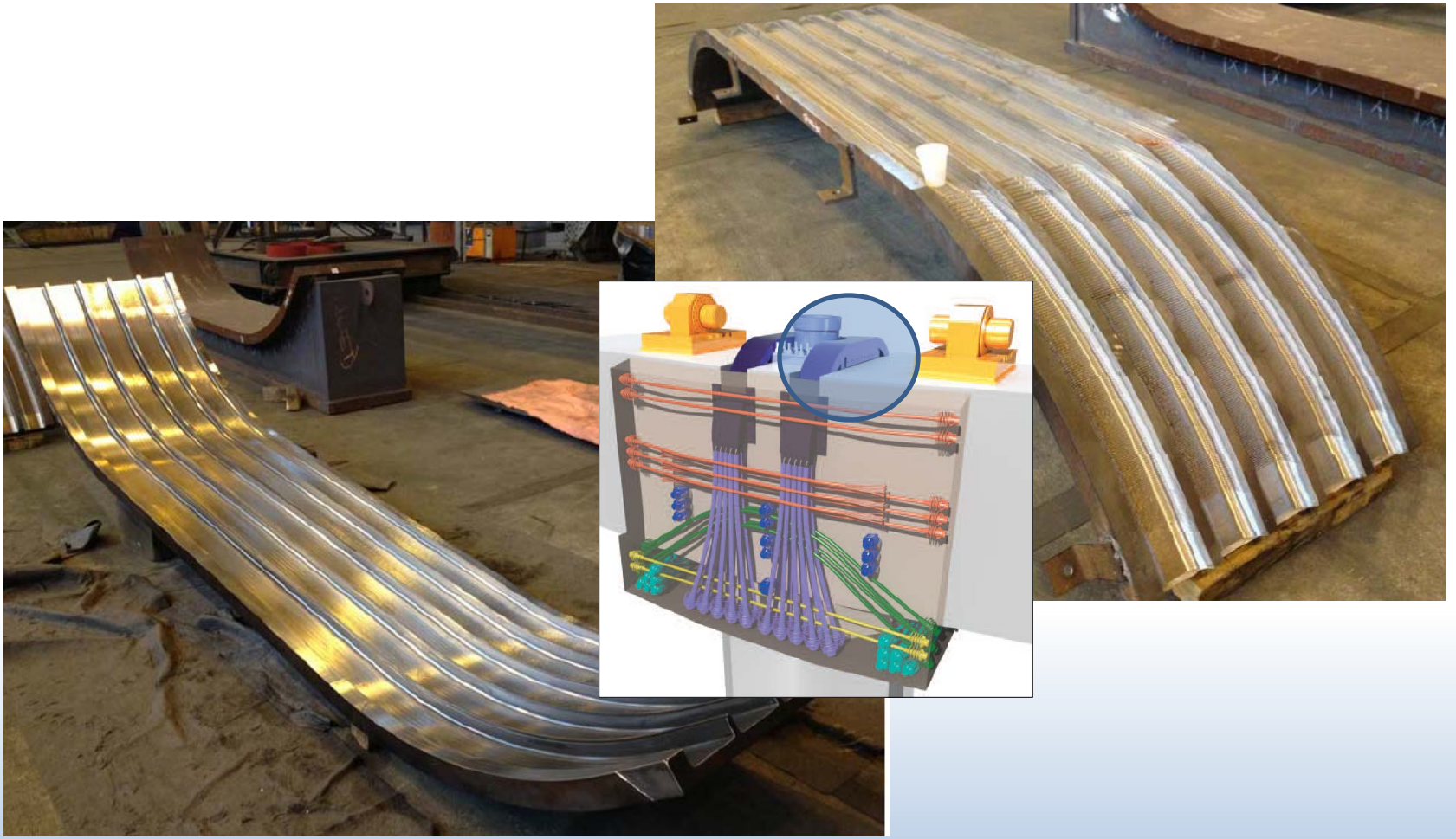
These reports can be found at http://www.mtc.ca.gov/news/press_releases/rel617.htm

Item 1a – Permanent Shear Key Retrofit Status and Interim Bearing Retrofit

Permanent Shear Key Retrofit Status

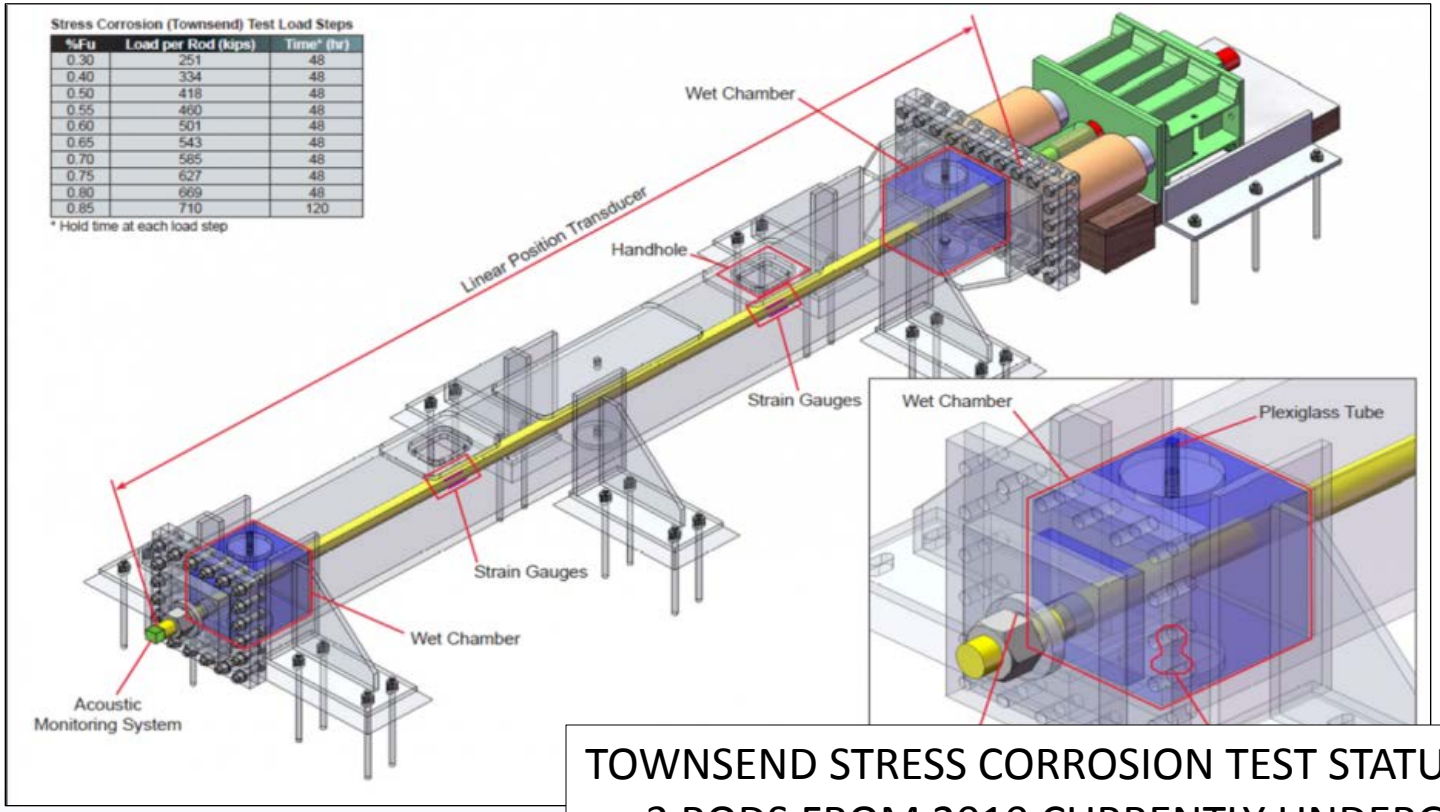


Permanent Shear Key Retrofit Status



Permanent Shear Key Retrofit Status

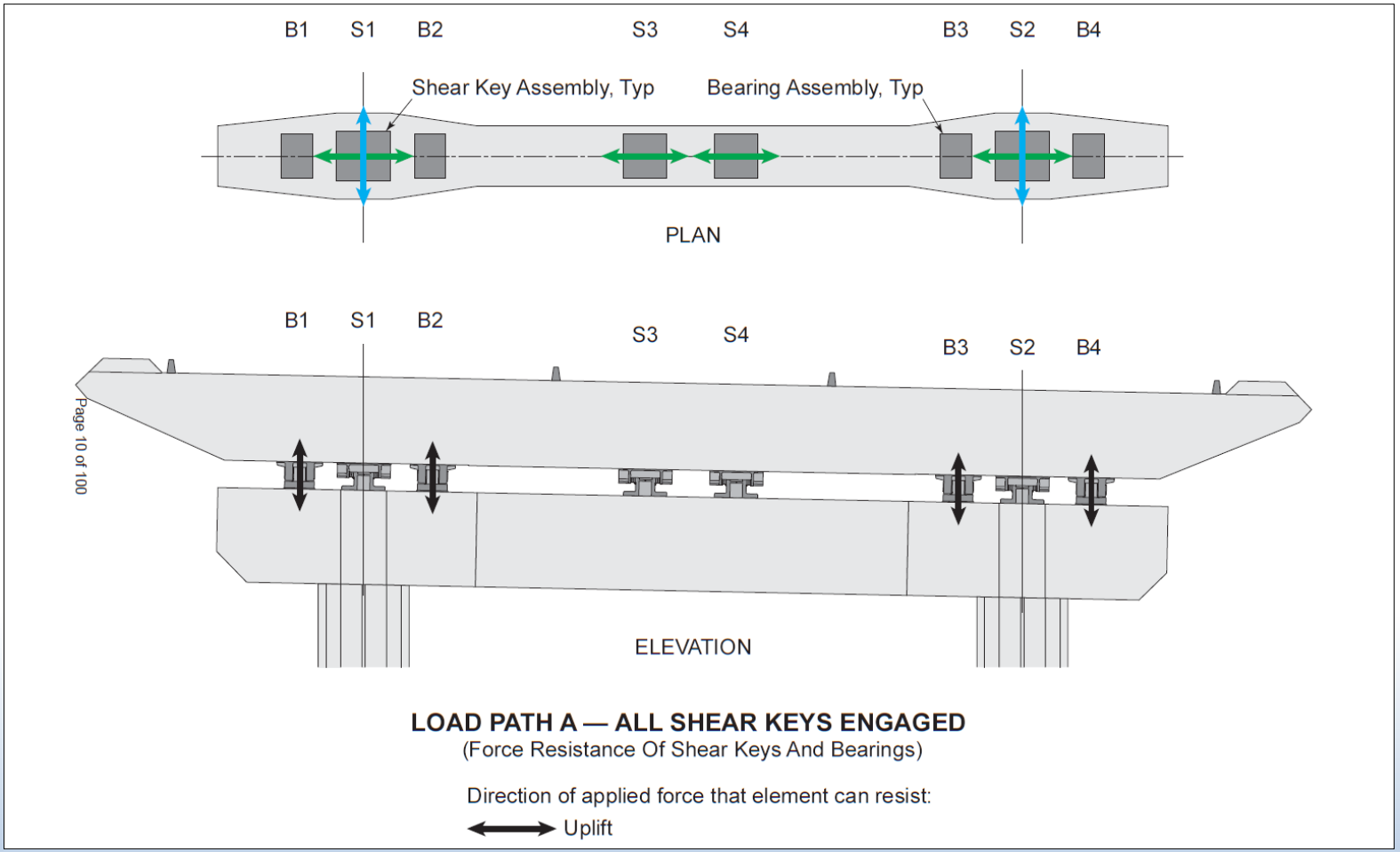
Stress Corrosion Testing Status



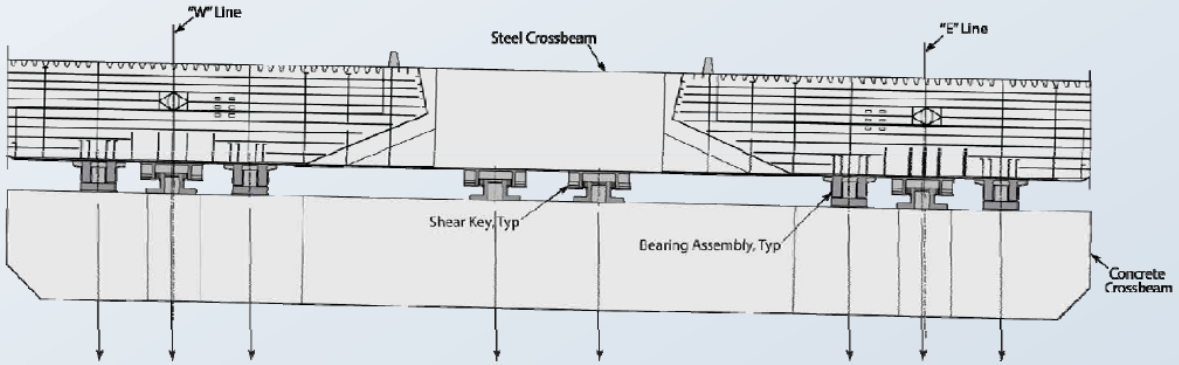
TOWNSEND STRESS CORROSION TEST STATUS

- 3 RODS FROM 2010 CURRENTLY UNDERGOING TESTING
- ROD 1 AT .7fu, DAY 14, NO FRACTURE
- ROD 2 AT .6fu, DAY 10, NO FRACTURE
- ROD 3 AT .5fu, DAY 6, NO FRACTURE

Interim Bearing Retrofit



Interim Bearing Retrofit

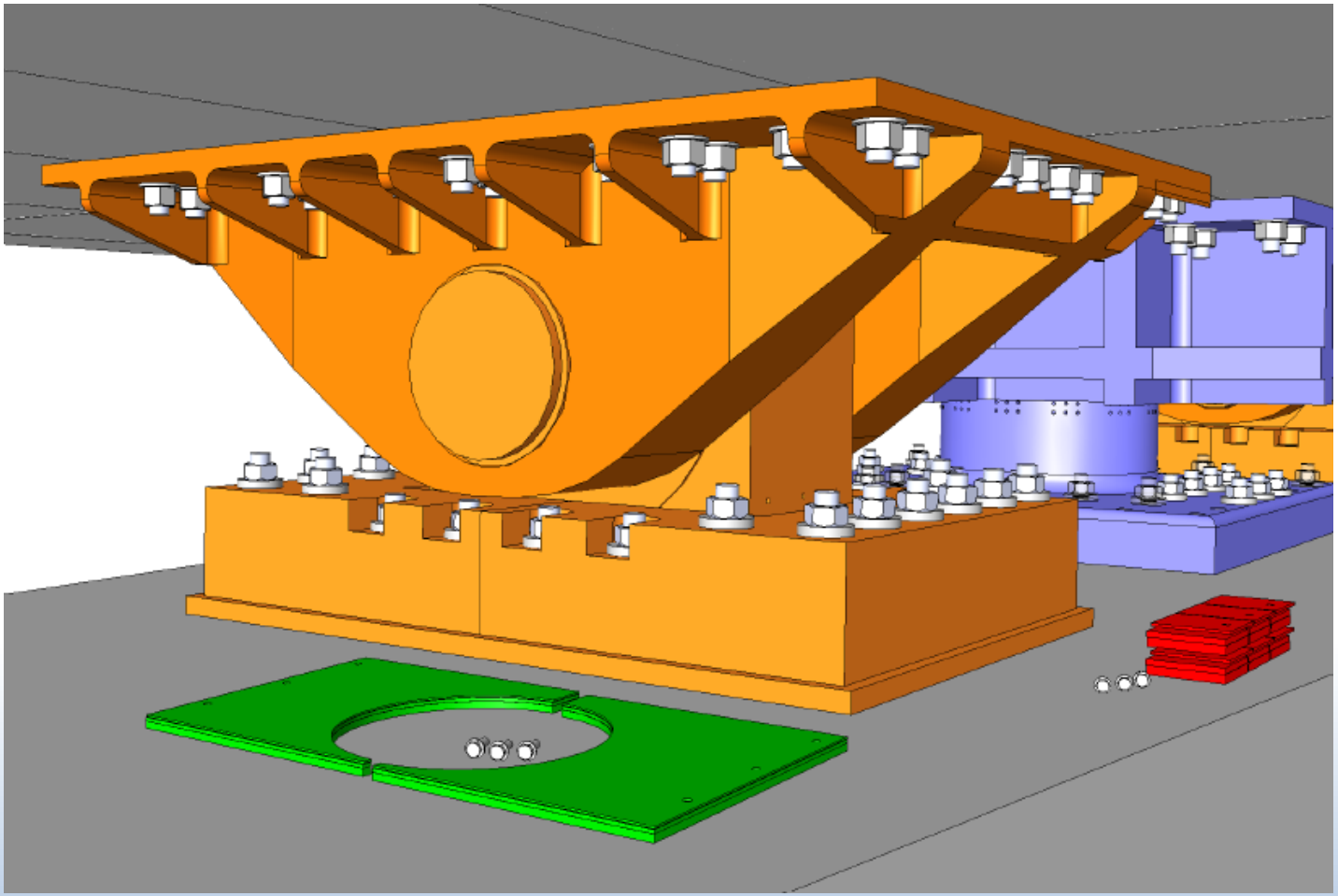


		Direction	B1	S1	B2	S3	S4	B3	S2	B4	TOTAL (MN)	SAFETY FACTOR
DEMAND	SEISMIC DEMAND FOR SEISMIC SAFETY EVALUATION (SEE) EARHQUAKE	Long									50	
		Trans									120	
CAPACITY	LOAD PATH A: (ALL SHEAR KEYS ENGAGED)	Long	0[a]	42	0[a]	0[c]	0[c]	0[a]	42	0[a]	84	168%
		Trans	0[b]	42	0[b]	42	42	0[b]	42	0[b]	168	140%
	LOAD PATH B: (ALL SHEAR KEYS DISCOUNTED) (BEARINGS ENGANGED)	Long	15	0	15	0	0	15	0	15	60	120%
		Trans	30	0	30	0	0	30	0	30	120	100%
	LOAD PATH C: (INTERIM SHIM OF BEARINGS) (S1 & S2 SHEAR KEYS DISCOUNTED)	Long	15	0	15	0[c]	0[c]	15	0	15	60	120%
		Trans	30	0	30	42	42	30	0	30	204	170%

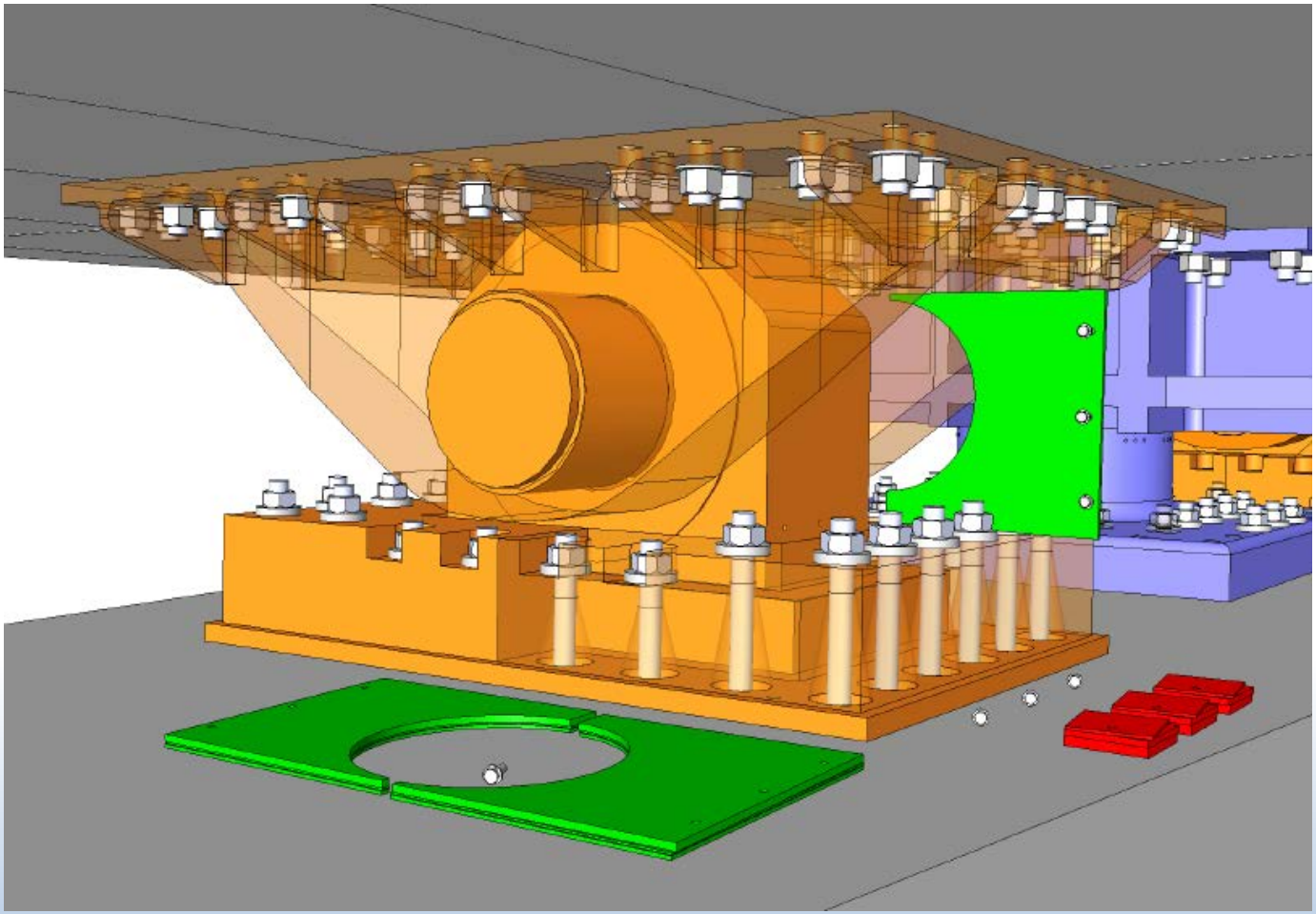
a. 30 mm gap in the longitudinal direction. Bearing (B1, B2, B3, and B4) engage after 30 mm gap is closed by displacement.
b. 20 mm gap in the transverse direction. Bearing (B1, B2, B3, and B4) engage after 20 mm gap is closed by displacement.
c. 43 mm gap filled with neoprene open cell. Shear Keys (S3 and S4) engage in the longitudinal direction after 43 mm gap is closed by displacement.

Interim Bearing Retrofit

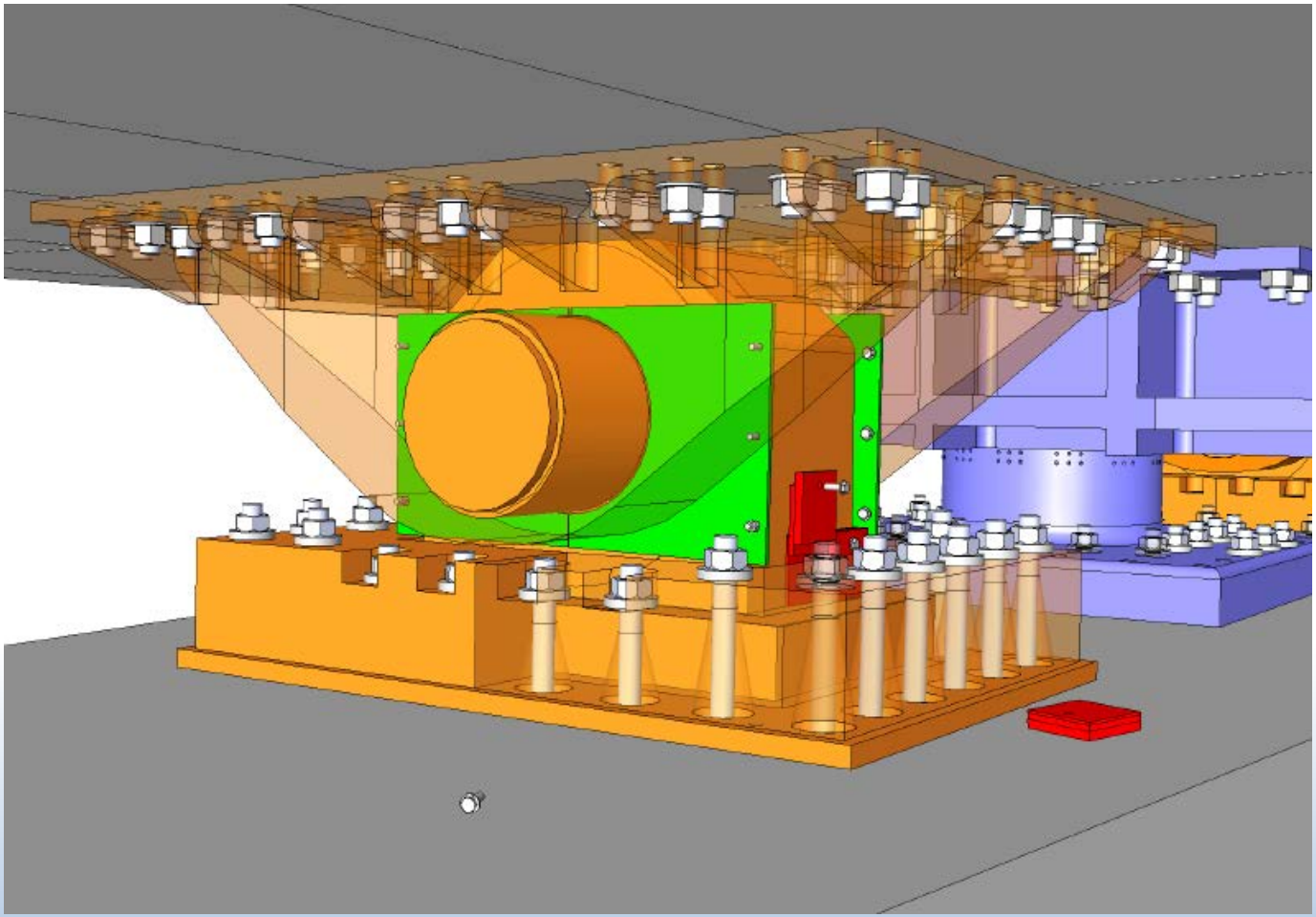
Interim Bearing Retrofit



Interim Bearing Retrofit



Interim Bearing Retrofit



FHWA Comment

Buckland & Taylor

Independent Review Summary

Peter Taylor, P.E.

Brian Morgenstern, P.E.

BUCKLAND & TAYLOR | COWI

ISSUE

Capacity (strength) of horizontal connection of superstructure to top of Pier E2

Horizontal – Longitudinal, Transverse

Stages

1. As designed
2. Present
3. Temporary (shimmed bearings)
4. Final

Participating Components

› **Longitudinal** Connection

Stage	Participating Components		
	Shear Keys		Bearings
	S1, S2	S3, S4	B1, B2, B3, B4
1			
2			
3			
4			

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Participating Components

› **Longitudinal** Connection

Stage	Participating Components		
	Shear Keys		Bearings
	S1, S2	S3, S4	B1, B2, B3, B4
1	✓	Gap	Gap
2			
3			
4			

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Participating Components

› **Longitudinal** Connection

Stage	Participating Components		
	Shear Keys		Bearings
	S1, S2	S3, S4	B1, B2, B3, B4
1	✓	Gap	Gap
2	Minor	Gap	Gap
3			
4			

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Participating Components

› **Longitudinal** Connection

Stage	Participating Components		
	Shear Keys		Bearings
	S1, S2	S3, S4	B1, B2, B3, B4
1	✓	Gap	Gap
2	Minor	Gap	Gap
3	Minor	Gap	✓
4			

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Participating Components

› **Longitudinal** Connection

Stage	Participating Components		
	Shear Keys		Bearings
	S1, S2	S3, S4	B1, B2, B3, B4
1	✓	Gap	Gap
2	Minor	Gap	Gap
3	Minor	Gap	✓
4	✓	Gap	Gap

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Participating Components

› **Transverse** Connection

Stage	Participating Components		
	Shear Keys		Bearings
	S1, S2	S3, S4	B1, B2, B3, B4
1	✓	✓	Gap
2	Minor	✓	Gap
3	Minor	✓	✓
4	✓	✓	Gap

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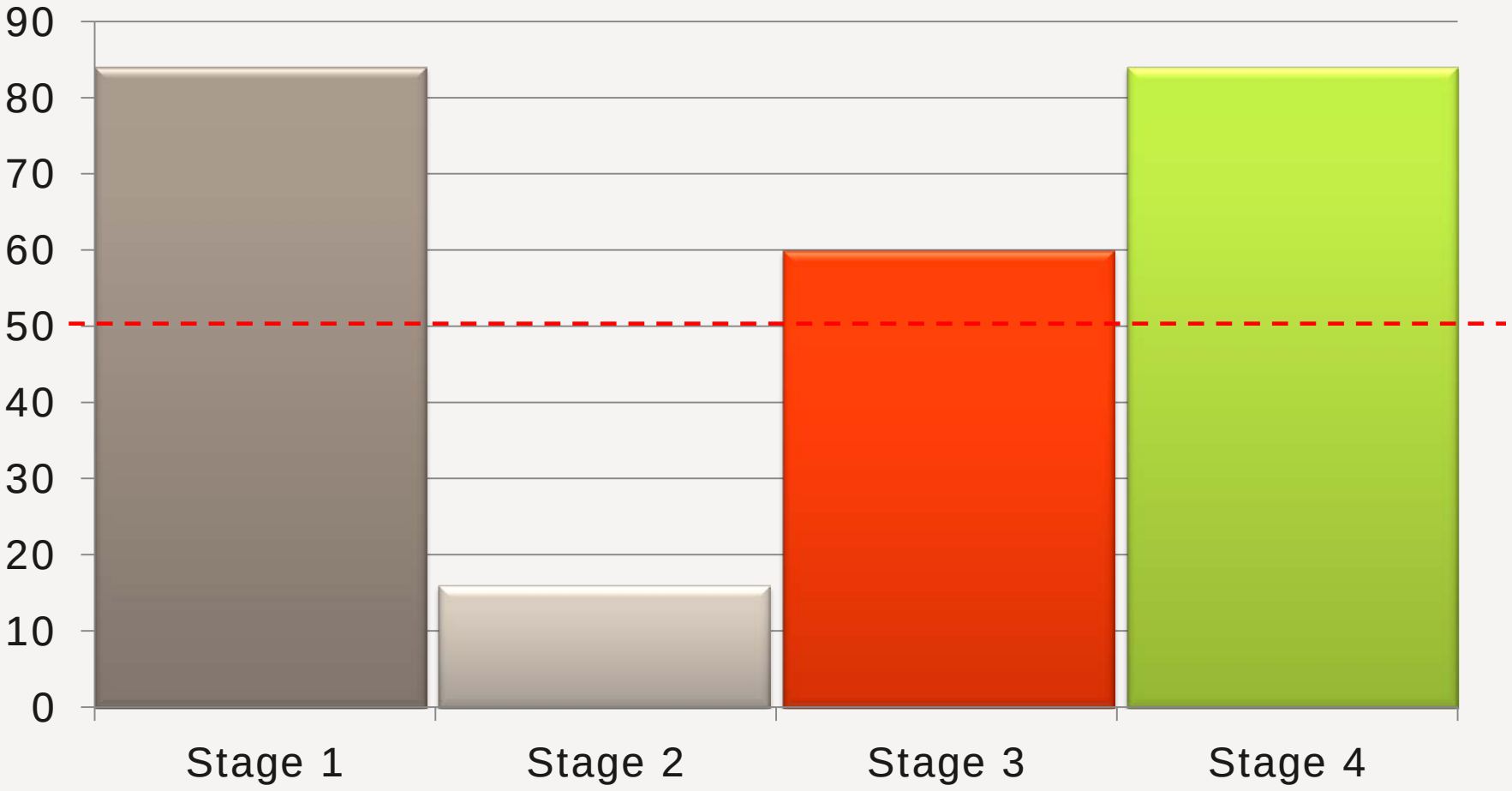
Mobilized Capacity

Longitudinal



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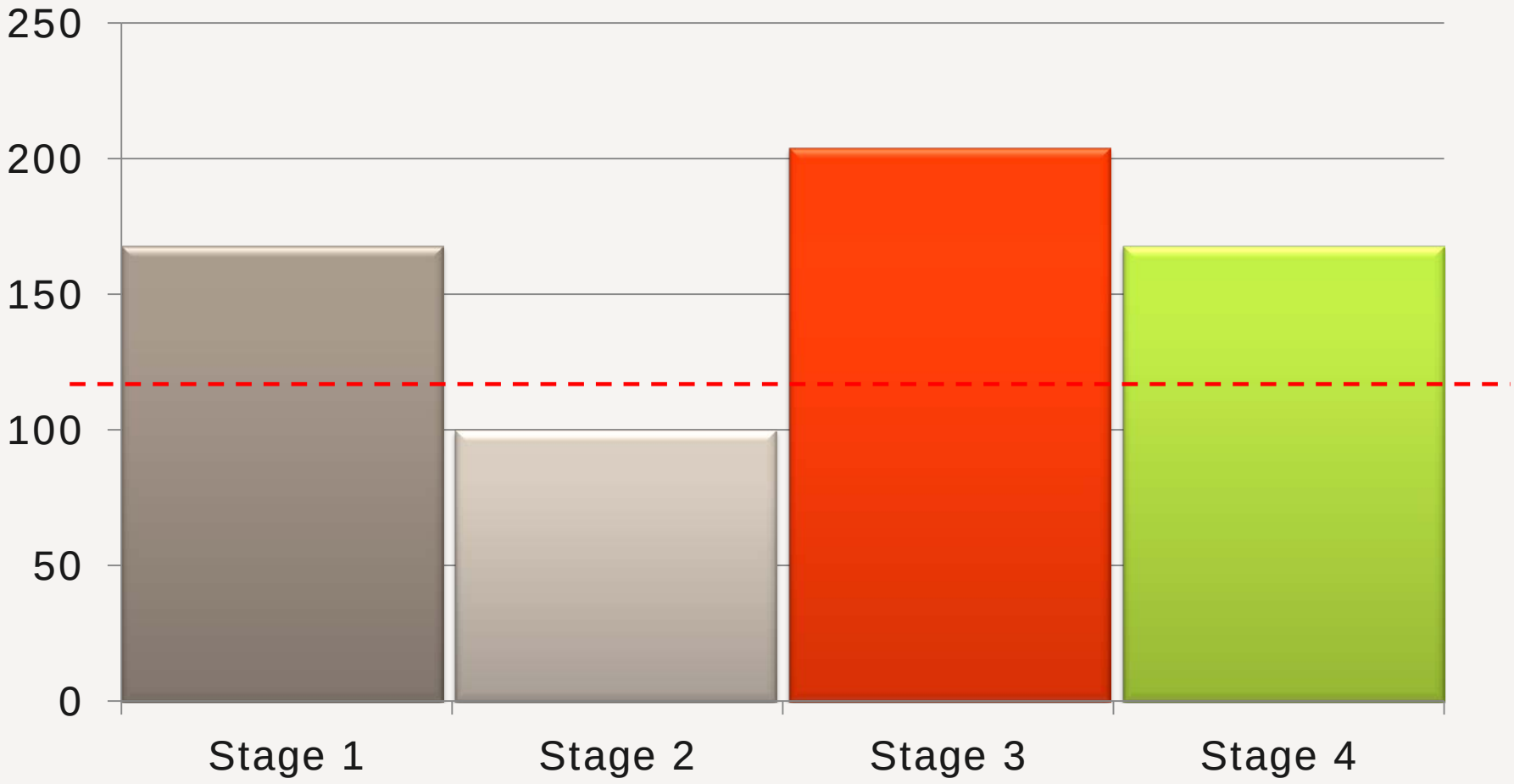
Mobilized Capacity

Transverse



BUCKLAND & TAYLOR | COWI

Conclusion

› The proposal to temporarily shim the bearings is sound.

Modjeski and Masters

Independent Review Summary

Dr. John Kulicki

Dr. Thomas Murphy

MODJESKI and MASTERS
Experience great bridges.

Investigation Summary

- Independently verified capacities of shear keys and bearings
- Reviewed all portions of the structure affected by the change in load path
- Evaluated design of shims and behavior of shimmed bearings
- In-depth, thorough review of both the concept and the execution

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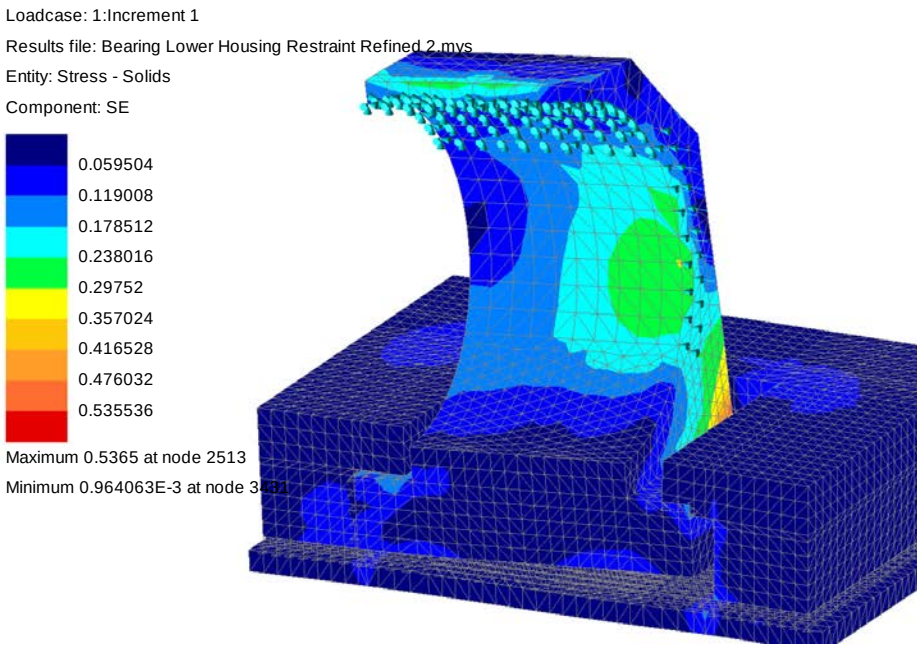
Experience great bridges.

Bearing Capacities

- Basic and refined analyses of the bearings and interfaces
- Independently arrived at similar capacities



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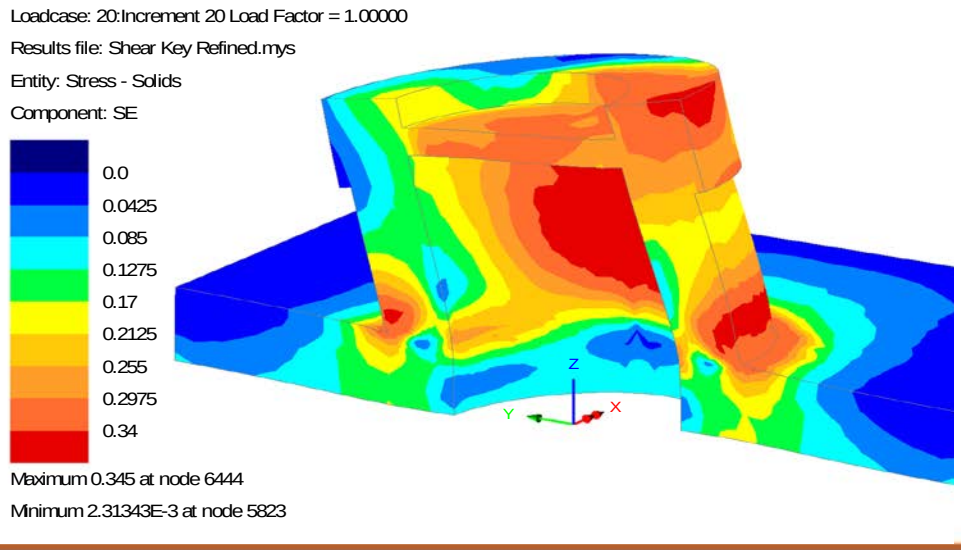
Experience great bridges.

Shear Key Capacities

- New load path places different demands on remaining shear keys (S3 & S4)
- Basic and refined analyses performed
- Large reserved capacity available



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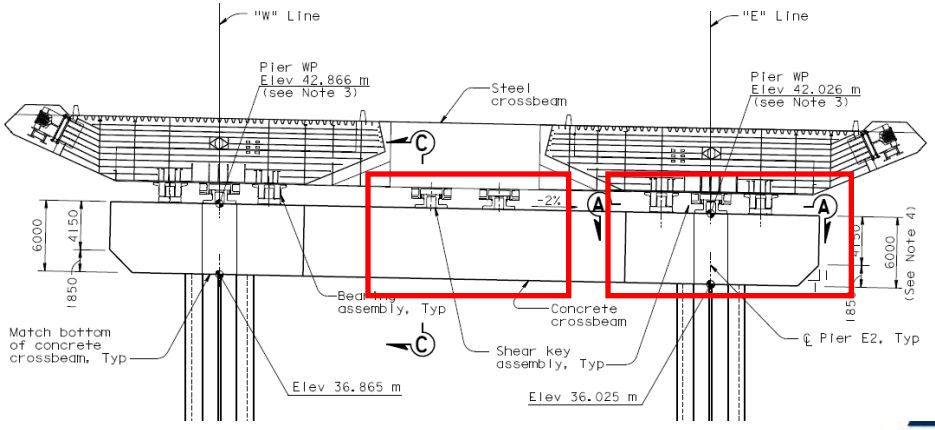
Experience great bridges.

OBG and Pier Strut Capacities

- Evaluate steel box girder and concrete pier strut for changes in load path
- In all cases capacities available far greater than demands



MODJESKI and MASTERS
Experience great bridges.

Conclusions

- The concept is simple, but very effective
- Provides the required strength, plus a significant reserve
- Results in a redundant load path which further enhances safety
- Poses no risk to the bridge in the short or long term

MODJESKI and MASTERS
Experience great bridges.

TBPOC Recommendation

- Staff recommends the installation of bearing shims to make the new East Span of the San Francisco-Oakland Bay Bridge seismically safe for traffic while a permanent replacement of broken bolts at Pier E2 is under construction.

TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

CALTRANS · BAY AREA TOLL AUTHORITY · CALIFORNIA TRANSPORTATION COMMISSION

Memorandum

TO: Toll Bridge Program Oversight Committee (TBPOC) **DATE:** August 14, 2013

FR: Program Management Team

RE: Agenda No. - 1b
Item – Bridge Opening Date Determination

Recommendation:
The Committee is requested to approve a 5-day closure of the bridge from the evening of Wednesday, August 28 to the morning of Tuesday, September 3 to complete bridge opening activities.

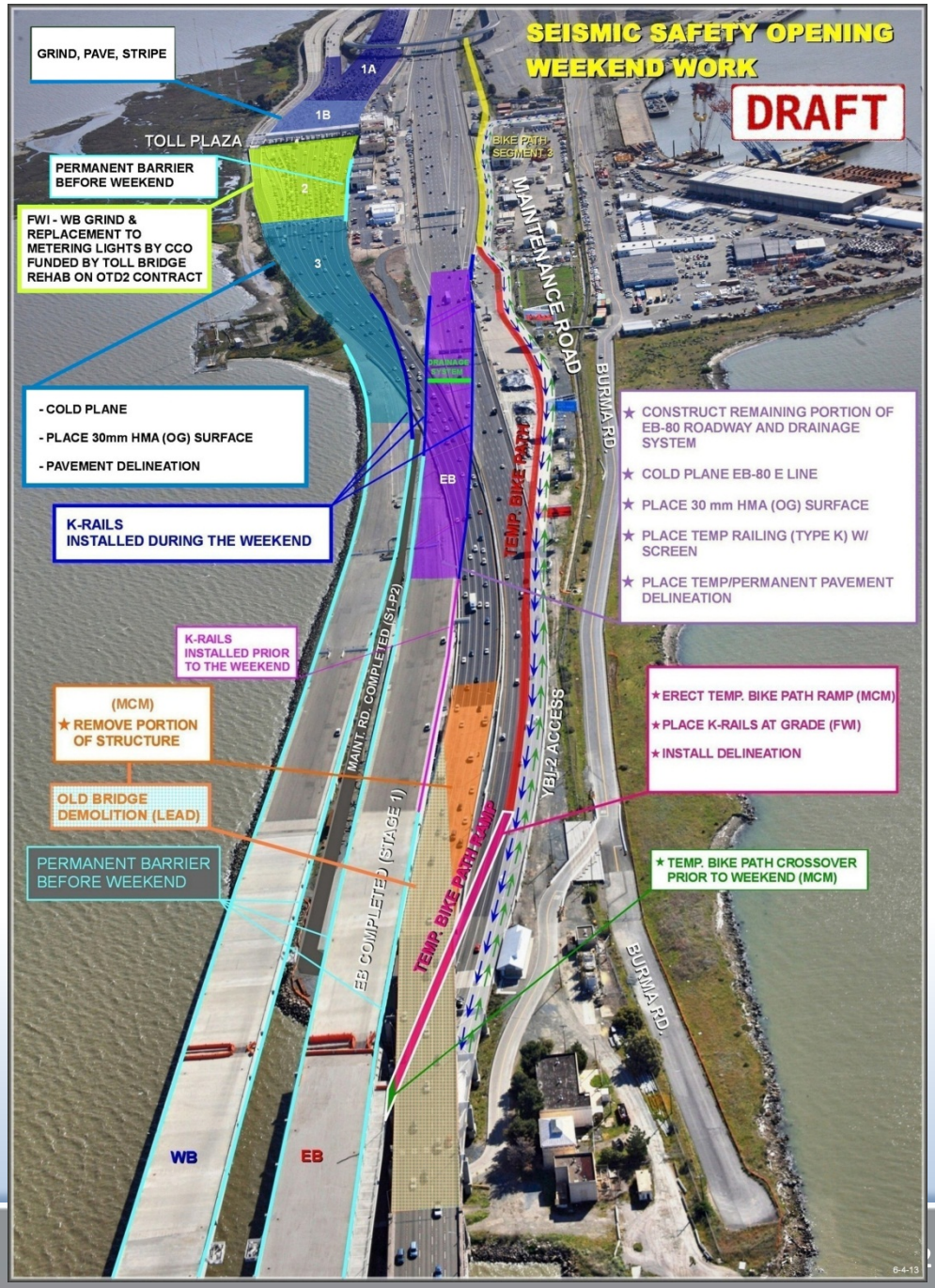
Discussion:
In light of the positive conclusions of the reviews of the interim bearing retrofit proposal, it is possible to safely open the new bridge prior to completion of the permanent Pier E2 bolt repairs.

Staff will present information regarding construction activities and schedule necessary to open the new bridge to traffic, historic traffic volumes, and a schedule of events around the region to help determine an appropriate weekend to open the new East Span to traffic.

Item 1b – Bridge Opening Date Determination

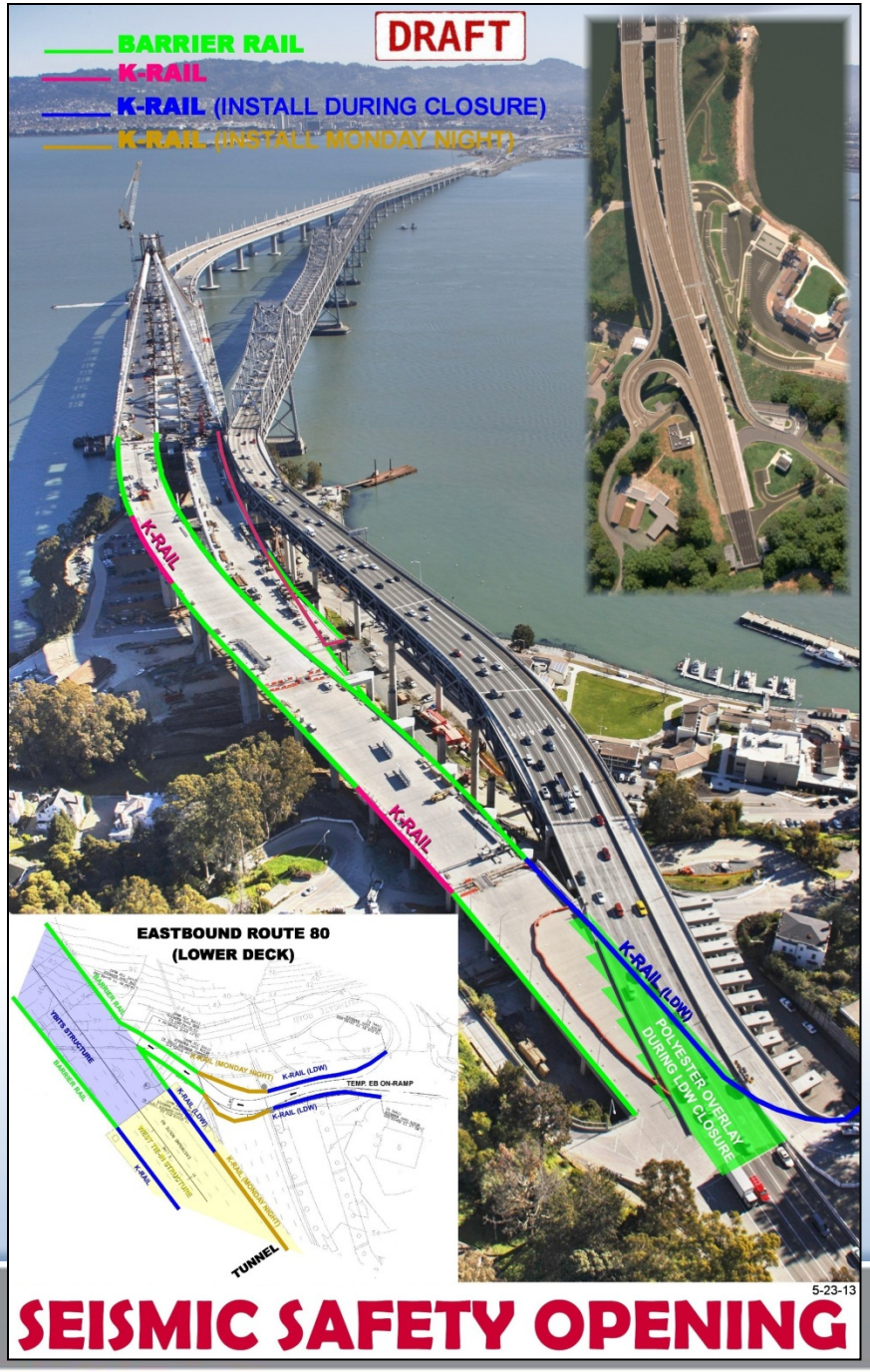
Opening Construction Activities - Oakland

- Roadway Realignment
  - Paving
  - Striping
  - Drainage
  - Barriers
- Bridge Demolition
- Bike Path Construction



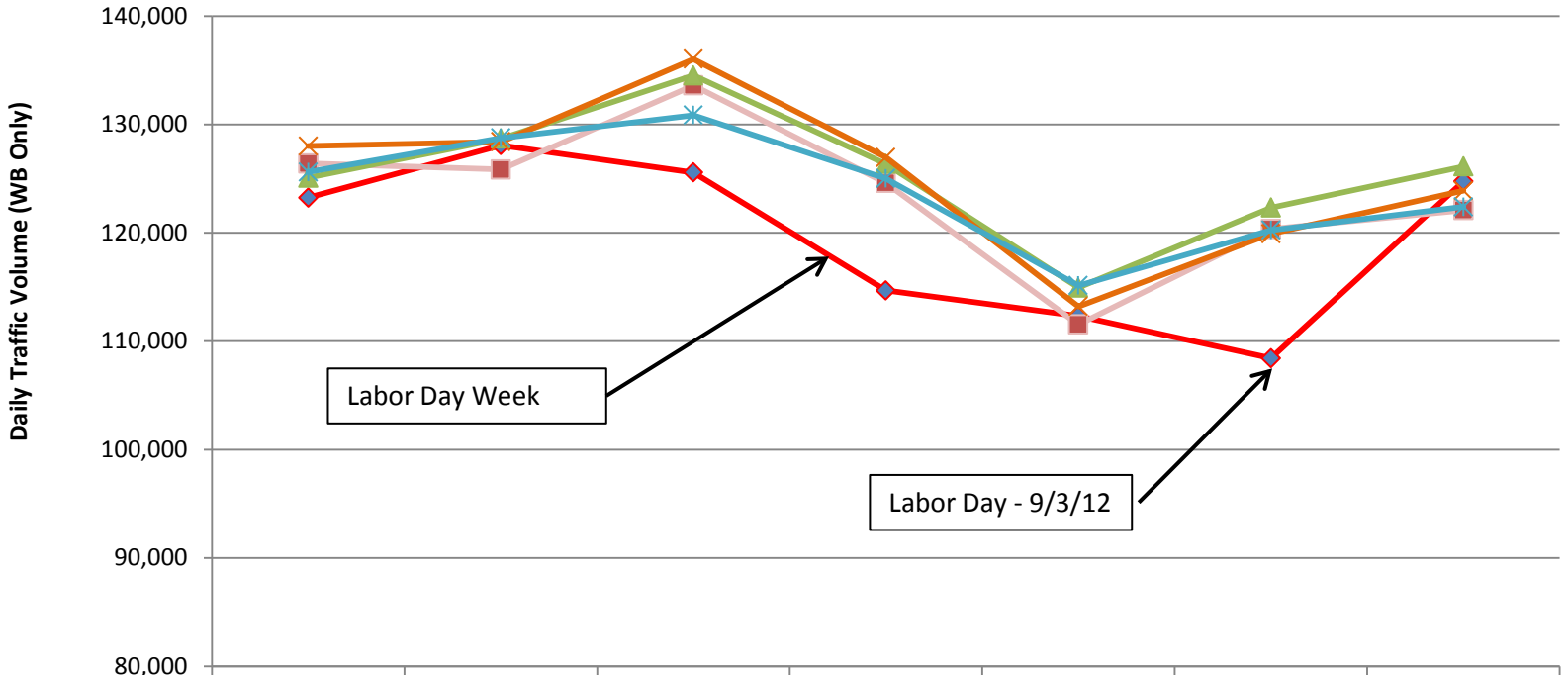
Opening Construction Activities - YBI

- Roadway Realignment
  - Paving
  - Striping
  - Barriers



Traffic Volumes

SFOBB Westbound Daily Volume for September 2012



	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday
Week Including Labor Day	123,246	128,071	125,569	114,685	112,331	108,428	124,749
Week After Labor Day	126,400	125,839	133,592	124,594	111,547	120,343	122,089
Second Week in September	125,082	128,696	134,526	126,355	114,943	122,326	126,117
Third Week in September	128,011	128,394	136,018	126,957	113,212	119,917	123,880
Fourth Week in September	125,611	128,750	130,855	125,014	115,131	120,254	122,395

Day of the Week

Bridge Closure Options/Events Calendar

Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday
28 Aug	29	30	31	1 Sep	2 Labor Day	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1 Oct

Bridge Closure Option #1 – PM Wed 28 Aug to AM Tues 3 Sep

Bridge Closure Option #2 – PM Wed 18 Sep to AM Tues 24 Sep

Coordination

- Contractors
- Cities of Oakland and San Francisco
- BART
- CHP
- Treasure Island
- Others

TBPOC Recommendation

- Staff recommends a 5-day closure of the bridge to complete construction.
- Staff recommends closing the bridge over Labor Day Weekend from the evening of Wednesday, August 28 to the morning of Tuesday, September 3 to complete construction.

TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE
CALTRANS · BAY AREA TOLL AUTHORITY · CALIFORNIA TRANSPORTATION COMMISSION

Memorandum

TO: Toll Bridge Program Oversight Committee (TBPOC) **DATE:** August 14, 2013

FR: Program Management Team

RE: Agenda No. - 1c
Item – Events to Commemorate Bridge Opening

Recommendation:
Information Only

Discussion:

Regardless of which September weekend the TBPOC selects for the Bay Bridge closure and subsequent opening of the new East Span, there is insufficient time to carry out the public access events approved by the TBPOC in November 2012 and for which BATA in February 2013 approved funding.

Given the significant logistical efforts needed to prepare for the construction, traffic mitigation and other activities required for the opening of the new Eastern Span of the Bay Bridge, and the limited staff resources at our disposal, the brief time available simply does not allow for the planning and preparation for safe public access to commemorate the new bridge.

Instead the opening of the new span will be commemorated with a traditional chain-cutting event. Conducting a limited chain-cutting event does not preclude the possibility of eventually making plans for a large-scale public access event, or events, at some point in the future. But it is expected that any celebration of this scope would take place after all work on the new East Span has been completed.